

RS - INT
REGENERATION
Planting
Fp-9a
1937-38

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THE EFFECT OF DIFFERENT DEGREES OF ROOT PRUNING AND SHADING
ON PONDEROSA PINE PLANTING STOCK IN CENTRAL IDAHO

WORKING PLAN AND PROGRESS REPORT

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Introduction

The purpose of this experiment is similar to that of the root-pruning study designated Fp-9 in that it is designed to determine whether 12-inch roots are better than 8-inch roots for survival of planted ponderosa pine trees in southcentral Idaho. The additional variables of artificial shade and season of planting, however, were incorporated into this experiment.

Plot Locations and Descriptions

The three plots used for this experiment are located as follows:

Pine Creek, North Slope - T.5 N., R.6 E., Sec. 7, Boise M.

Pine Creek, West Slope - T.5 N., R.6 E., Sec. 7, Boise M.

Station Area, South Slope- T.6N., R.5 E., Sec. 22, Boise M.

Plot Design and Treatments

The factors studied on these plots are as follows:

1. Season of planting

- a. Fall
- b. Spring

2. Length of roots on 2-0^{*} Bannock Creek planting stock

- a. Trees with unpruned roots about 12 inches long.
- b. Trees with roots pruned to length of 8 inches.

* 1-0 Stock used on Station Area plot only.

3. Shading

- a. No shade
- b. Shade provided by 2 shingles, each approximately 6x16 inches set at right angles to each other on the south side of the planted tree with about 12 inches of their length extending above ground.

On the north and west aspects in the Pine Creek area a 4 x 4 latin square was laid out. Each subplot was divided into two parts, one for fall planting and one for spring planting. On the south aspect in the Station Area, the subplots were not divided and fall planting only was used. Ten trees were planted in each subplot for each season of sowing. Treatment allocations for the three plots are shown in figure 1. Fall planting was done on October 22 and 25, 1937 and spring planting in May 1938.

Examinations and Results

On the two Pine Creek plots, three examinations have been made-- the first on July 22, 1938, the second on May 24, 1939 and the third on October 24, 1939. Second year height growth, survival and condition of the growing trees and causes of mortality of the dead trees were obtained on these two Pine Creek plots. On the Station Area south slope only one examination was made, July 25, 1938, in which the condition of the trees was noted. No complete compilation or analysis has been made of this data.

A casual inspection in May 1938 revealed that a number of the fall-planted trees had died as a result of snow bending and others probably from drought shortly after planting caused by the occurrence of warm weather before new roots were formed on the trees.

4F	4S	3F	3S	1F	1S	2F	2S
3F	3S	1F	1S	2F	2S	4F	4S
2F	2S	4F	4S	3F	3S	1F	1S
1F	1S	2F	2S	4F	4S	3F	3S

Pine Creek - North Slope

2F	2S	1F	1S	4F	4S	3F	3S
3F	3S	4F	4S	1F	1S	2F	2S
4F	4S	2F	2S	3F	3S	1F	1S
1F	1S	3F	3S	2F	2S	4F	4S

Pine Creek - West Slope

2F	3F	4F	1F
1F	4F	2F	3F
4F	1F	3F	2F
3F	2F	1F	4F

Station Area - South Slope

LEGEND:

- F - fall planted
- S - Spring planted
- 1 - unpruned, unshaded
- 2 - " shaded
- 3 - pruned, unshaded
- 4 - " shaded

Figure 1.- Diagram of root-pruning and shading plots.

In the July 1938 examination, it was noted that shingles placed on the uphill side of the seedlings on the north facing slope provided protection from sloughing soil as well as from intense insolation. A few of the shingles gave way under the weight of the snow and fell over on the seedlings they were supposed to protect and caused some unexpected mortality. On the west slope shingles were placed on the downhill side of the seedlings where soil and debris collected in sufficient quantities to bury the trees in some cases.

Proposed Work for 1941

1. Survival counts and height growth for the third growing season, 1940, should be made in the spring of 1941 before growth starts.
2. All data should be compiled and analyzed for significance of differences between treatments.
3. Maps of the plots should be made.
4. Survival counts and height growth measurements for 1941 season in October should be made if possible.
5. A progress report covering the first four years after planting should be made.